

Supplementary Information

Oxygen isotope anomaly in tropospheric CO₂ and implications for CO₂ residence time in the atmosphere and gross primary productivity

Mao-Chang Liang^{1,2}, Sasadhar Mahata¹, Amzad H. Laskar¹, Mark H. Thiemens³, Sally Newman⁴

¹Research Center for Environmental Changes, Academia Sinica, Taipei, Taiwan

²Graduate Institute of Astronomy, National Central University, Taipei, Taiwan

³Department of Chemistry and Biochemistry, University of California at San Diego, La Jolla, USA

⁴Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, USA

13 **Table S1:** Summary of CO₂ data collected at Academia Sinica (AS), National Taiwan University
14 (NTU), South China Sea (SCS), and Palos Verdes (California, USA; PVD). Taipei=AS+NTU.
15 Values of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ are referenced to V-PDB and V-SMOW, respectively.

| Sampling date & time | [CO ₂] (ppmv) | $\delta^{13}\text{C}$ (‰) | $\delta^{18}\text{O}$ (‰) | $\Delta^{17}\text{O}$ (‰) | Note(s) |
|----------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|
| Academia Sinica (AS) | | | | | |
| 2012/12/28 11:45 | N/A | -8.52 | 41.50 | 0.230 | Latitude: 25°02'27" N |
| 17:00 | N/A | -8.82 | 41.48 | 0.330 | |
| 2013/01/02 10:15 | N/A | -9.21 | 39.09 | 0.270 | Longitude: 121°36'51" E |
| 2013/01/15 11:00 | N/A | -8.49 | 39.41 | 0.350 | |
| 2013/01/24 11:00 | 365.2 | -8.77 | 41.68 | 0.258 | Elevation: 60 m a.s.l. |
| 12:52 | 398.6 | -9.12 | 40.91 | 0.238 | |
| 19:00 | 475.1 | -9.87 | 39.84 | 0.345 | |
| 2013/09/24 10:40 | 392.8 | -8.11 | 41.25 | 0.256 | |
| 14:10 | 392.3 | -8.08 | 41.17 | 0.322 | |
| 20:00 | 408.7 | -8.86 | 40.70 | 0.294 | |
| 2013/09/25 14:30 | 398.4 | -8.38 | 40.96 | 0.352 | |
| 23:30 | 402.5 | -8.61 | 40.12 | 0.328 | |
| 2013/10/07 11:30 | 404.7 | -8.62 | 40.47 | 0.252 | |
| 14:50 | 397.0 | -8.26 | 41.14 | 0.216 | |
| 22:20 | 462.6 | -11.08 | 39.27 | 0.264 | |
| 2013/10/08 10:20 | 432.6 | -9.83 | 39.62 | 0.294 | |
| 14:40 | 424.4 | -9.48 | 40.02 | 0.245 | |
| 21:40 | 425.1 | -9.52 | 40.25 | 0.292 | |
| 2013/10/16 10:30 | 403.4 | -8.67 | 40.49 | 0.301 | |
| 14:20 | 404.4 | -8.64 | 40.48 | 0.269 | |
| 21:00 | 420.4 | -9.36 | 40.23 | 0.290 | |
| 2013/10/17 10:00 | 399.8 | -8.37 | 40.76 | 0.322 | |
| 14:30 | 402.3 | -8.05 | 40.23 | 0.315 | |
| 15:00 | 402.1 | -8.51 | 40.36 | 0.306 | |
| 17:20 | 409.3 | -8.44 | 39.89 | 0.325 | |
| 23:59 | 434.5 | -9.78 | 39.77 | 0.335 | |
| 2013/10/25 10:00 | 411.0 | -8.76 | 40.39 | 0.335 | |
| 14:05 | 411.1 | -8.81 | 40.45 | 0.294 | |
| 23:45 | 415.2 | -9.00 | 40.15 | 0.313 | |
| 2013/10/26 10:00 | 410.6 | -8.85 | 40.40 | 0.307 | |
| 2013/10/27 00:45 | 430.6 | -9.62 | 40.26 | 0.312 | |
| 2013/10/30 10:10 | N/A | -7.34 | 40.42 | 0.368 | |
| 14:30 | 394.6 | -6.96 | 40.51 | 0.415 | |
| 2013/10/31 10:00 | 399.0 | -8.39 | 41.22 | 0.280 | |
| 14:00 | 397.8 | -8.35 | 41.20 | 0.327 | |
| 22:20 | 406.0 | -8.69 | 41.02 | 0.330 | |
| 2013/11/04 10:30 | 411.1 | -8.78 | 40.49 | 0.309 | |

| | | | | | |
|------------|-------|-------|--------|-------|-------|
| | 14:30 | 405.9 | -8.64 | 40.60 | 0.324 |
| | 18:30 | 414.9 | -9.02 | 40.37 | 0.347 |
| 2013/11/09 | 10:30 | 405.1 | -8.34 | 41.08 | 0.334 |
| | 18:30 | 425.3 | -9.43 | 40.30 | 0.356 |
| 2013/11/19 | 10:00 | 419.6 | -8.74 | 40.58 | 0.371 |
| | 14:00 | 418.4 | -8.71 | 40.50 | 0.358 |
| | 18:00 | 414.6 | -8.91 | 40.54 | 0.337 |
| 2013/11/26 | 11:00 | 409.7 | -8.47 | 40.74 | 0.336 |
| | 15:00 | 406.5 | -8.52 | 40.86 | 0.313 |
| | 21:00 | N/A | -9.61 | 40.28 | 0.291 |
| 2014/01/27 | 10:30 | 403.0 | -8.52 | 41.31 | 0.388 |
| | 15:20 | 400.0 | -8.68 | 41.21 | 0.383 |
| | 18:00 | 404.5 | -8.64 | 41.31 | 0.390 |
| 2014/02/03 | 11:10 | 408.8 | -8.80 | 41.18 | 0.370 |
| | 14:30 | 409.0 | -8.86 | 41.38 | 0.353 |
| | 19:30 | 409.0 | -8.95 | 41.40 | 0.371 |
| | 19:30 | 409.0 | -8.95 | 41.40 | 0.376 |
| 2014/02/17 | 10:30 | 445.9 | -10.30 | 40.39 | 0.291 |
| | 14:30 | 408.6 | -8.74 | 41.51 | 0.354 |
| | 18:00 | 437.0 | -9.92 | 41.06 | 0.340 |
| 2014/02/19 | 10:00 | 418.0 | -9.12 | 40.59 | 0.329 |
| | 18:00 | 424.0 | -9.38 | 40.39 | 0.373 |
| | 15:35 | 403.2 | -8.55 | 40.36 | 0.306 |
| 2014/02/20 | 14:30 | 410.6 | -8.81 | 40.94 | 0.355 |
| | 18:00 | 417.2 | -9.02 | 40.65 | 0.301 |
| 2014/02/22 | 12:15 | 401.0 | -8.44 | 41.47 | 0.400 |
| | 17:00 | 402.0 | -8.36 | 41.49 | 0.349 |
| 2014/02/24 | 17:30 | 406.6 | -8.63 | 41.56 | 0.397 |
| 2014/03/06 | 16:30 | N/A | -10.18 | 39.28 | 0.267 |
| 2014/04/16 | 14:40 | 413.9 | -8.75 | 40.01 | 0.272 |
| 2014/05/08 | 10:42 | 471.7 | -10.67 | 40.26 | 0.330 |
| 2014/06/04 | 10:40 | 423.5 | -9.30 | 40.83 | 0.376 |
| | 12:30 | 420.2 | -9.17 | 41.17 | 0.376 |
| | 17:00 | 417.3 | -9.17 | 41.13 | 0.408 |
| 2014/06/14 | 19:45 | 415.6 | -9.13 | 39.92 | 0.349 |
| 2014/07/21 | 10:50 | 402.8 | -8.40 | 41.41 | 0.354 |
| 2014/07/22 | 09:45 | 405.0 | -8.63 | 41.19 | 0.372 |
| 2014/07/24 | 10:10 | 423.0 | -9.42 | 40.41 | 0.378 |
| 2014/07/25 | 10:00 | 457.3 | -10.57 | 39.19 | 0.334 |
| | 11:00 | 412.5 | -8.91 | 40.08 | 0.383 |
| | 15:15 | 433.4 | -9.53 | 40.05 | 0.364 |
| 2014/08/05 | 10:20 | 420.4 | -9.18 | 37.33 | 0.302 |
| 2014/08/06 | 10:25 | 420.7 | -9.31 | 39.61 | 0.374 |
| 2014/08/07 | 11:50 | 422.6 | -9.56 | 40.22 | 0.375 |
| 2014/08/08 | 11:20 | 416.9 | -9.24 | 39.96 | 0.390 |

| | | | | |
|------------------|-------|--------|-------|-------|
| 2014/09/03 09:00 | 455.2 | -10.58 | 39.55 | 0.420 |
| 12:00 | 431.5 | -9.64 | 41.96 | 0.262 |
| 2014/10/27 11:10 | 408.4 | -8.50 | 41.34 | 0.324 |
| 14:23 | 403.7 | -8.60 | 41.25 | 0.299 |
| 18:01 | 416.7 | -8.84 | 41.10 | 0.317 |
| 2014/11/18 09:30 | 414.1 | -9.20 | 40.49 | 0.305 |
| 14:00 | 412.2 | -9.01 | 40.64 | 0.360 |
| 18:08 | 415.2 | -9.04 | 40.57 | 0.362 |
| 2015/01/16 10:00 | 412.7 | -8.20 | 41.25 | 0.326 |
| 13:00 | 412.3 | -8.82 | 41.17 | 0.343 |
| 2015/01/26 14:00 | 421.1 | -9.02 | 41.29 | 0.334 |
| 2015/03/19 13:20 | 420.7 | -8.83 | 41.80 | 0.355 |
| 13:30 | 421.6 | -8.86 | 41.76 | 0.352 |
| 13:40 | 424.5 | -8.97 | 41.66 | 0.341 |
| 13:50 | 420.8 | -8.78 | 41.80 | 0.359 |
| 14:00 | 420.1 | -8.75 | 41.75 | 0.365 |
| 2015/04/02 09:30 | 453.6 | -10.54 | 40.61 | 0.330 |
| 12:53 | 450.2 | -10.11 | 40.85 | 0.305 |
| 18:30 | 423.9 | -9.39 | 41.42 | 0.299 |
| 2015/04/23 10:20 | 405.9 | -8.90 | 41.56 | 0.296 |
| 14:30 | 405.3 | -8.99 | 41.67 | 0.342 |
| 2015/05/08 09:25 | 407.6 | -7.97 | 40.14 | 0.312 |
| 12:40 | 423.7 | -9.25 | 40.87 | 0.309 |
| 17:30 | 452.5 | -10.54 | 40.42 | 0.346 |
| 2015/05/11 14:30 | 402.7 | -8.41 | 42.05 | 0.348 |
| 17:30 | 410.2 | -9.36 | 41.04 | 0.300 |
| 2015/05/28 09:00 | 423.5 | -9.60 | 40.51 | 0.261 |
| 13:20 | 399.8 | -8.90 | 41.33 | 0.321 |
| 17:52 | 415.5 | -9.30 | 41.24 | 0.331 |
| 2015/06/11 09:50 | 423.5 | -9.56 | 40.76 | 0.328 |
| 13:05 | 399.8 | -9.05 | 41.71 | 0.331 |
| 17:15 | 415.5 | -10.44 | 40.78 | 0.330 |
| 2015/06/25 09:20 | 417.3 | -9.57 | 40.17 | 0.320 |
| 13:10 | 411.0 | -9.53 | 40.66 | 0.334 |
| 17:15 | 423.5 | -9.71 | 40.20 | 0.346 |
| 2015/07/23 09:40 | N/A | -9.28 | 41.08 | 0.374 |
| 13:00 | 404.9 | -8.94 | 41.35 | 0.379 |
| 17:00 | 427.5 | -9.69 | 39.96 | 0.327 |
| 2015/08/06 09:20 | 412.3 | -9.13 | 40.93 | 0.403 |
| 13:10 | 401.4 | -8.63 | 41.48 | 0.368 |
| 17:00 | 400.7 | -9.26 | 41.59 | 0.375 |
| 2015/08/20 09:25 | 398.3 | -8.56 | 41.68 | 0.380 |
| 13:10 | 397.3 | -8.59 | 41.66 | 0.382 |
| 17:50 | 399.7 | -9.61 | 39.72 | 0.397 |
| 2015/09/03 09:30 | 425.8 | -9.84 | 39.74 | 0.335 |

| | | | | | |
|----------------------------------|-------|--------|-------|-------|----------------------------|
| 12:45 | 418.4 | -9.56 | 40.48 | 0.363 | n = 146 |
| 17:30 | 422.1 | -10.12 | 39.30 | 0.398 | |
| 2015/09/15 13:30 | 403.2 | -8.69 | 41.12 | 0.397 | |
| 17:00 | 408.8 | -8.70 | 40.65 | 0.391 | |
| 2015/10/13 09:30 | 399.5 | -8.85 | 40.62 | 0.421 | |
| 13:20 | 400.7 | -8.86 | 40.80 | 0.357 | |
| 2015/10/27 09:30 | 435.6 | -10.17 | 40.03 | 0.328 | |
| 13:30 | 416.9 | -9.42 | 40.73 | 0.347 | |
| 2015/11/13 09:15 | 435.8 | -10.28 | 39.82 | 0.340 | |
| 13:00 | 409.4 | -9.12 | 40.64 | 0.347 | |
| 17:00 | 443.1 | -10.43 | 39.45 | 0.331 | |
| 2015/11/27 09:30 | 407.6 | -8.88 | 40.81 | 0.332 | |
| 13:30 | 406.8 | -8.93 | 40.91 | 0.340 | |
| 17:00 | 411.8 | -9.04 | 40.92 | 0.374 | |
| 2015/12/08 09:15 | 407.3 | -8.96 | 40.71 | 0.330 | |
| 17:15 | 409.2 | -9.12 | 40.78 | 0.347 | |
| 2015/12/22 09:30 | 407.4 | -9.56 | 40.63 | 0.330 | |
| 13:30 | 391.1 | -8.79 | 41.46 | 0.403 | |
| 17:00 | 392.7 | -8.86 | 41.37 | 0.324 | |
| Average | 414.6 | -9.07 | 40.70 | 0.336 | |
| Stdev | 16.2 | 0.65 | 0.71 | 0.041 | |
| National Taiwan University (NTU) | | | | | |
| 2013/11/14 10:10 | 353.8 | -7.95 | 40.94 | 0.354 | Latitude: 25°00'53" N |
| 14:03 | 366.2 | -8.02 | 41.29 | 0.358 | |
| 19:20 | 462.1 | -9.94 | 38.32 | 0.375 | |
| 2013/11/15 10:40 | 416.1 | -9.12 | 39.41 | 0.414 | Longitude: 121°32'21" E |
| 14:05 | 421.1 | -9.19 | 39.34 | 0.382 | |
| 19:12 | 438.3 | -9.92 | 38.26 | 0.335 | |
| 2013/11/16 10:55 | 412.2 | -8.78 | 40.02 | 0.324 | Elevation: 20 m a.s.l. |
| 14:22 | 408.4 | -8.70 | 40.24 | 0.324 | |
| 19:28 | 462.1 | -7.27 | 38.52 | 0.331 | |
| 2013/11/24 11:07 | 365.2 | -8.77 | 41.68 | 0.258 | |
| 12:52 | 398.6 | -9.12 | 40.91 | 0.238 | |
| 19:00 | 475.1 | -9.87 | 39.84 | 0.345 | |
| 2013/11/28 11:20 | 416.3 | -9.29 | 40.04 | 0.294 | |
| 14:32 | 421.5 | -9.18 | 40.25 | 0.315 | |
| 20:27 | N/A | -9.60 | 40.20 | 0.399 | |
| 2013/12/01 10:53 | 408.2 | -8.81 | 40.72 | 0.296 | |
| 14:03 | N/A | -8.91 | 40.61 | 0.315 | |
| 15:42 | 411.6 | -8.96 | 40.60 | 0.349 | |
| 2013/12/07 12:07 | 404.2 | -8.56 | 41.34 | 0.311 | |
| 16:16 | 409.9 | -8.63 | 41.18 | 0.339 | |
| 2014/01/07 15:12 | N/A | -9.90 | 40.71 | 0.333 | |
| 22:27 | N/A | -10.72 | 39.92 | 0.331 | |
| 2014/01/20 11:42 | 436.8 | -9.93 | 40.31 | 0.345 | |

| | | | | |
|------------------|-------|--------|-------|-------|
| 15:00 | 420.2 | -9.15 | 40.72 | 0.340 |
| 22:15 | 425.5 | -9.52 | 40.47 | 0.406 |
| 2014/04/17 07:05 | 447.5 | -10.15 | 40.73 | 0.360 |
| 09:05 | 429.0 | -9.94 | 40.85 | 0.367 |
| 10:05 | 424.4 | -9.45 | 41.21 | 0.339 |
| 12:00 | 415.6 | -9.39 | 41.49 | 0.363 |
| 13:12 | 414.3 | -9.24 | 41.25 | 0.349 |
| 15:07 | 429.8 | -10.26 | 40.79 | 0.356 |
| 17:10 | 434.7 | -9.62 | 40.82 | 0.391 |
| 2014/07/22 10:10 | 408.8 | -8.70 | 41.11 | 0.270 |
| 14:10 | 419.1 | -9.72 | 40.92 | 0.370 |
| 19:15 | 411.7 | -8.99 | 41.10 | 0.427 |
| 2014/07/23 15:45 | 438.3 | -9.79 | 37.68 | 0.281 |
| 2014/07/25 11:15 | 408.3 | -8.87 | 40.86 | 0.285 |
| 22:10 | 476.7 | -11.42 | 37.84 | 0.332 |
| 2014/07/26 01:12 | 454.7 | -10.11 | 39.28 | 0.298 |
| 2014/09/03 09:00 | 444.9 | -10.40 | 39.71 | 0.335 |
| 12:00 | 424.0 | -9.29 | 40.46 | 0.333 |
| 15:00 | 413.8 | -8.88 | 41.15 | 0.328 |
| 2015/03/19 10:26 | 436.7 | -10.79 | 40.73 | 0.318 |
| 13:13 | 420.7 | -9.28 | 41.49 | 0.332 |
| 13:21 | 421.2 | -9.38 | 41.36 | 0.325 |
| 13:30 | 421.6 | -9.07 | 41.59 | 0.373 |
| 13:39 | 424.5 | -9.13 | 41.56 | 0.336 |
| 13:50 | 420.8 | -9.20 | 41.86 | 0.345 |
| 14:00 | 420.1 | -9.06 | 41.60 | 0.356 |
| 17:00 | 413.8 | -9.02 | 41.64 | 0.323 |
| 2015/04/23 14:00 | 423.3 | -9.99 | 41.25 | 0.347 |
| 17:15 | 423.3 | -9.99 | 41.25 | 0.355 |
| 2015/05/08 17:15 | 478.4 | -11.11 | 40.41 | 0.341 |
| 2015/05/11 09:00 | 428.2 | -10.27 | 40.60 | 0.298 |
| 13:20 | 428.2 | -8.81 | 42.06 | 0.287 |
| 16:51 | 406.5 | -9.18 | 41.63 | 0.326 |
| 2015/05/28 08:43 | 428.9 | -10.16 | 40.48 | 0.290 |
| 13:10 | 398.0 | -8.59 | 42.09 | 0.296 |
| 17:45 | 420.7 | -9.27 | 41.19 | 0.333 |
| 2015/06/25 10:14 | 415.1 | -9.36 | 40.46 | 0.359 |
| 13:13 | 408.1 | -9.17 | 41.14 | 0.365 |
| 17:09 | 414.6 | -9.12 | 41.33 | 0.329 |
| 2015/07/23 09:00 | N/A | -15.19 | 38.57 | 0.304 |
| 17:00 | N/A | -13.12 | 38.78 | 0.257 |
| 2015/08/06 13:00 | N/A | -9.09 | 41.06 | 0.352 |
| 2015/08/20 09:15 | 398.3 | -8.82 | 41.92 | 0.354 |
| 0 13:00 | 398.4 | -8.60 | 40.76 | 0.309 |
| 17:00 | 400.1 | -8.75 | 40.82 | 0.283 |

| | | | | | |
|-----------------------|-------|--------|-------|-------|-----------------------------|
| 2015/09/15 09:00 | 417.4 | -9.46 | 40.29 | 0.311 | |
| 13:00 | 404.6 | -8.86 | 40.62 | 0.337 | |
| 17:00 | 417.4 | -9.14 | 40.42 | 0.332 | |
| 2015/10/13 09:10 | 399.5 | -8.92 | 40.67 | 0.320 | |
| 13:15 | 404.6 | -8.88 | 40.67 | 0.359 | |
| 17:00 | 396.8 | -9.07 | 40.62 | 0.330 | |
| 2015/10/27 09:00 | 451.1 | -10.74 | 39.68 | 0.339 | |
| 13:20 | 415.4 | -9.51 | 40.47 | 0.317 | |
| 17:00 | 415.5 | -9.38 | 40.66 | 0.373 | |
| 2015/11/13 09:05 | 439.2 | -10.26 | 39.76 | 0.336 | |
| 13:20 | 415.6 | -9.96 | 40.03 | 0.344 | |
| 17:05 | 431.4 | -9.40 | 40.35 | 0.372 | |
| 2015/11/27 09:15 | 409.6 | -9.10 | 40.76 | 0.405 | |
| 13:15 | 409.5 | -8.97 | 40.96 | 0.340 | |
| 17:30 | 416.6 | -9.18 | 40.90 | 0.366 | |
| 2015/12/08 09:20 | 407.7 | -8.94 | 41.07 | 0.334 | |
| 13:13 | 404.4 | -8.44 | 41.82 | 0.352 | |
| 17:00 | 408.8 | -9.12 | 40.98 | 0.325 | |
| 2015/12/22 09:20 | N/A | -11.32 | 39.58 | 0.306 | |
| 13:20 | 396.6 | -8.78 | 41.71 | 0.340 | |
| 17:00 | 395.8 | -8.88 | 37.47 | 0.276 | |
| Average | 419.0 | -9.46 | 40.56 | 0.335 | n = 89 |
| Stdev | 21.4 | 1.02 | 0.98 | 0.035 | |
| Average(Taipei) | 416.2 | -9.22 | 40.65 | 0.335 | n = 235 |
| Stdev(Taipei) | 18.3 | 0.83 | 0.82 | 0.039 | |
| South China Sea (SCS) | | | | | |
| 2013/06/18 18:35 | N/A | -8.27 | 41.81 | 0.313 | 18°18'14" N 118°17'23" E |
| 2013/06/21 14:35 | N/A | -8.32 | 41.91 | 0.365 | 11°47'00' N 113°45'00' E |
| 2013/06/22 13:45 | N/A | -8.98 | 41.29 | 0.296 | 10°32'00' N 114°22'00" E |
| 2013/06/26 18:44 | N/A | -8.43 | 41.90 | 0.383 | 13°16'19" N 116°16'36" E |
| 2013/06/27 08:35 | N/A | -8.48 | 42.12 | 0.371 | 15°07'17" N 116°59'35" E |
| 2013/06/28 08:37 | N/A | -8.67 | 41.65 | 0.328 | 19°38'26" N 118°0'56" E |
| 2013/10/15 08:15 | 403.2 | -8.42 | 40.84 | 0.332 | 21°17'15" N 118°57'47" E |
| 13:15 | 400.8 | -8.46 | 40.79 | 0.301 | 20°48'52" N 118°31'56" E |
| 18:00 | 406.1 | -8.75 | 40.53 | 0.313 | 20°15'05" N 118°01'19" E |
| 2013/10/16 07:00 | 391.6 | -8.76 | 40.52 | 0.294 | 18°41'15" N |

| | | | | | |
|-------------------------------------|--------------|--------------|--------------|--------------|-----------------------------|
| | | | | | 116°36'36" E |
| 12:05 | 397.8 | -8.44 | 40.85 | 0.329 | 18°03'14" N 116°02'46" E |
| 14:00 | 391.7 | -8.30 | 40.95 | 0.400 | 18°03'14" N 116°02'46" E |
| 17:20 | 395.2 | -8.31 | 41.01 | 0.346 | 18°03'14" N 116°02'46" E |
| 2013/10/17 08:40 | 383.5 | -8.26 | 40.40 | 0.317 | 18°03'14" N 116°02'46" E |
| Average | 395.4 | -8.47 | 41.18 | 0.335 | n = 14 |
| Stdev | 7.3 | 0.22 | 0.59 | 0.033 | |
| Palos Verdes, California, USA (PVD) | | | | | |
| 2015/04/11 14:44 | 409.5 | -9.04 | 40.92 | 0.333 | Latitude: 33°42'53" N |
| 2015/04/25 14:24 | 406.9 | -8.88 | 41.46 | 0.301 | |
| 2015/05/02 13:42 | 410.6 | -8.92 | 41.46 | 0.333 | Longitude: 118°18'42" W |
| 2015/05/09 13:55 | 407.7 | -8.89 | 41.65 | 0.290 | |
| 2015/05/16 14:33 | 407.7 | -8.96 | 41.39 | 0.377 | Elevation: 330 m a.s.l. |
| 2015/05/23 14:23 | 403.3 | -8.73 | 41.70 | 0.339 | |
| 2015/05/30 15:18 | 405.2 | -8.84 | 41.68 | 0.325 | |
| 2015/06/13 14:11 | 405.5 | -8.87 | 41.46 | 0.313 | |
| 2015/06/20 14:43 | 407.6 | -8.83 | 41.37 | 0.347 | |
| 2015/07/04 14:14 | 400.0 | -8.66 | 41.71 | 0.295 | |
| 2015/07/19 13:56 | 404.7 | -8.67 | 41.75 | 0.370 | |
| 2015/07/25 14:15 | 395.4 | -8.44 | 41.32 | 0.349 | |
| 2015/08/08 14:11 | 391.2 | -8.39 | 41.12 | 0.277 | |
| 2015/08/15 14:07 | 400.1 | -9.52 | 40.37 | 0.281 | |
| 2015/08/22 14:04 | 400.3 | -8.46 | 41.20 | 0.344 | |
| 2015/08/29 14:28 | 405.9 | -8.70 | 41.38 | 0.330 | |
| 2015/09/12 13:49 | 408.6 | -8.80 | 41.38 | 0.310 | |
| 2015/09/26 14:00 | 401.1 | -8.69 | 40.83 | 0.308 | |
| 2015/10/10 14:36 | 405.9 | -8.63 | 41.47 | 0.312 | |
| 2015/10/24 14:45 | 413.8 | -9.33 | 40.71 | 0.268 | |
| 2015/12/05 14:09 | 413.6 | -10.57 | 39.32 | 0.259 | |
| Average | 404.8 | -8.89 | 41.22 | 0.317 | |
| Stdev | 5.7 | 0.47 | 0.56 | 0.032 | n = 21 |